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ABSTRACT

The relationship between higher education and the economy in India, the labor market for college graduates, and the role of the public sector in reducing unemployment of college graduates were assessed in three studies. A case study in the State of West Bengal related the development of higher education with the employment needs of the country using a global framework. Employment conditions for graduates in the metropolis and the provinces were compared at Bombay and Karnataka State. College entrance of low caste Indians of the Marathwade region (Maharashtra State) was also examined. For each of the geographic locations, attention was directed to: educational expenditures as a percentage of state domestic product, expenditures on education at current and constant prices; graduate employment and unemployment rates, 1981; distribution of employed and unemployed graduates by family income; graduates' number of months/years for first regular job, by subject studies, 1980-1981; and earnings of university graduates by subject of study (for Bombay and Karnataka universities). In addition to the study findings, the theoretical background to the research is described, with attention to theories of higher education and society and theories of education and labor markets. A 33-item bibliography is provided. (SW)

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IEP Research Report No. 64

Higher education and graduate employment in India

A summary of three case studies

by Martin Carnoy

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International Institute for Educational Planning

Higher education and graduate employment in India:
a summary of three case studies

This study is part of the IIEP research project on 'Higher education and employment', directed by Bikas C. Sanyal

IIEP Research Report No. 64

Higher education and graduate employment in India

A summary of three case studies

Martin Carnoy

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The IIEP research project on higher education and employment

The rapid expansion of education in the countries of the Third World has in some respects created as many problems as it has solved. At the higher levels of education, we often find a considerable discrepancy between the output of graduates in different specializations and the absorptive capacity of the labour market leading, in turn, to unemployment and under-employment of certain types of graduates. In qualitative terms, questions are being raised as to whether the content and performance of systems of higher education are able to meet the changing needs of society, including the new and changing methods of production in the labour market.

These discrepancies are in need of exploration, understanding and remedy. The high unit cost and opportunity cost in higher education, the particular social and political significance of universities and university students, and the responsibility of the higher education system in guiding and developing other levels of education make it imperative that a special effort be directed towards the analysis of both the qualitative and quantitative discrepancies that have developed in the higher education system and towards the exploration of possible means to correct them.

It is in this context that the International Institute for Educational Planning during its past two Medium-Term Plans, carried out a research project to relate the development of higher education within a selection of countries to the changing needs of the employment market, in both quantitative and qualitative terms, so as to improve the basis for planning the development of higher education and to reduce the mismatch between the type of training offered by the institutions and the types of skills needed by the labour market.

The project had the aim of providing a knowledge-base for formulating educational policy oriented towards the employment needs of the country. The immediate objectives of the project were:

(a) to identify the role played by the education system in general, and the higher education system in particular, in the overall socio-economic development of the country and, conversely, the influence that the social, cultural and economic factors have exerted in the development of the education system;

(b) to identify the inconsistencies, both quantitative and qualitative, that have developed in the past in the education system and suggest measures to rectify them;

(c) to throw light on the main variables to be considered in formulating policies of intake to different disciplines and institutions;

(d) to identify the factors which intervene in the implementation of such policies and suggest some ways of minimizing the effect of these factors;

(e) to develop a system of indicators to be used by the national policy-makers, the university administrators, potential employers, and the students, for decision-making;

(f) to create a data base for researchers in educational planning, particularly in the area of employment.

Research was launched in twenty-one countries around the world to meet the above objectives in each case. This involved desk studies and surveys of the different target groups.

The research was organized in two phases. The first phase involved the country case studies which dealt with the above objectives in a more general way, giving emphasis to the identification of issues and generating some messages or hints for educational planners and decision-makers within a country and also identifying crucial issues which would need further in-depth analysis using the same data base.

The second phase of the project dealt with particular issues and hypotheses to be tested. A number of technical monographs have been

published or are in preparation in co-operation with outside researchers and organizations. In this phase further analysis of the data base created by the research project has been carried out since it was not possible to deal in-depth with all the issues in one report.

The present paper is an outcome of this latter endeavour. Based on the three studies conducted in India with three different objectives, the author has attempted to develop a theoretical framework to explain the phenomenon of education and employment in the country. In the State of West Bengal the original case study attempted to relate the development of higher education with the employment needs of the country in a global framework. In the study on 'Graduates and job markets: a quantitative study of two universities in India' (Bombay and Karnataka) a special objective was to compare the problem of insertion of two types of products in the labour market. In the third study the employment problem of a weaker section of the society (in the Marathwada region) was investigated.

The paper is being published at a very timely moment in that a new national policy of education has recently been adopted by the Indian Parliament and it is hoped that some of the findings of this paper will be of some use for the implementation of the policy.

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Introduction

Graduate employment in India has fascinated researchers since the 1960s, when they observed that apparently high graduate unemployment had not diminished the social demand for university education. Mark Blaug, Richard Layard and Maureen Woodhall's classic study (Blaug, Layard, and Woodhall, 1969) showed that despite unemployment of university leavers, the private rates of return (as measured by the difference in earnings of university and secondary graduates compared with their income foregone and other private costs), remained high because, first, unemployment rates of secondary school graduates were even higher (sharply reducing foregone earnings), and secondly, public universities charged low fees, subsidizing young, relatively high social class Indians to take higher education despite probable unemployment for a time after graduation.

Now, fifteen years later, we have not just one, but three, new analyses of higher education and graduate unemployment in India.[1] The three studies cover several Indian states and four sites—Bombay and Marathwada region in Maharashtra State, Dharwad in Karnataka State and the State of West Bengal. From the four, we have the opportunity to draw important lessons about the nature of graduate unemployment, the kinds of jobs graduates obtain, the amount of time they remain unemployed, and their incomes—all related to their field of study and

[1] The studies reviewed are P.K. Bose, B.C. Sanyal, and S.P. Mukherjee, *Graduate employment and higher education in West Bengal* New Delhi, Wiley Eastern Ltd./Paris, Unesco:IIEP, 1983; P.R. Panchamukhi, *Graduates and job markets: a quantitative study of two universities in India*, Paris, IIEP, 1987 (IIEP Occasional Paper No. 74); and V.V. Borkar and R.P. Kurulkar, *Employment experience of weaker caste graduates (Marathwada region, India)*, Paris, IIEP, 1987 (IIEP Occasional Paper No. 73).

their caste.

The studies focus on the employment and unemployment of university graduates in a period of Indian history marked by rapidly expanding enrolment in higher education. Blaug et. al. helped us understand why enrolment would expand in the face of apparently unfavorable conditions for graduates in the labour market, but these new studies provide us with a different level of insight: is it possible for planners to make changes in university education and the communication of labour market information to graduates in order to reduce the length of unemployment and achieve a better fit between training and available jobs?

The analyses show that unemployment among university graduates is very high, and that the waiting time to get a first job, especially when this high unemployment rate is taken into account, is long. The studies also suggest that there is significant differentiation that takes place at the university level among what has to be considered an already elite group in such societies. They also suggest that it is difficult to explain which individual graduates among the vast majority who hold "generalist" degrees have a high probability to be unemployed and which, a low probability. They show that the income pay-off to even those university graduates who find jobs is not very great compared to the average wages in manufacturing, and neither is the income pay-off to taking advanced degrees high. And, finally, they suggest that graduate unemployment may be different in nature from unemployment of lower schooled individuals: graduates may take several months or several years to find permanent jobs, but these jobs do tend to be permanent rather than of the type that are subject to frequent lay-offs.

Before we turn to the detailed results of these studies and their implications for generalities about higher education's value in the labour market, however, we review the theoretical underpinnings for studying education's role in this market. What do different theories tell us about education's effect on employment and income? On unemployment? On discrimination among different social class and caste groups?

The theoretical background to the studies

The role of higher education in unemployment depends, ultimately, on how we view the relationship of education to the economy, and how we view the functioning of the economy and its labour markets. Some educational theorists argue, for example, that education is an institution that is autonomous from the economy—that it has a life of its own, responding to social demands for knowledge and other educational goals and to bureaucratic demands within an educational structure that is largely independent of economic organization. Others argue that the educational system corresponds directly to the shape of these economic structures—that its functioning is derived from economic conditions and relationships.

Similarly, there are several different models of labour markets and the relationship of education to these markets. On the one hand, neo-classical human capital theory assumes that education is a characteristic attached to an individual seller of labour services, a characteristic valued by the employer and invested in by the employee. The market for education, then, is a market for a trait that has economic meaning both for employees and employers. Unemployment occurs only when the competitive market does not clear. This can only occur because of imperfections in the market; i.e., union interference, minimum wage laws, or, in the case of education, poor information or mismatch of the supply of educational traits and the demand for those traits.

Two alternatives to this neo-classical model have been proposed. The first is dual labour market theory, in which productivity is a function of the job, not of individual characteristics—hence, the value of education to the employer is the indication it gives of the trainability of the worker rather than of the worker's productivity. Unemployment and mismatch in dual labour market theory is unrelated to education in an explicit fashion. The level of unemployment is a function of macro-

economic policies, job structure, technical change, etc. The second alternative—segmented labour market theory—agrees that productivity is a function of jobs rather than individual characteristics, but goes farther to suggest that both the structure of the labour market and the allocation of positions (jobs) in that structure are based on social class relations and class position. Education is a primary mechanism for reproducing the social class structure through allocating individuals in different social class positions to jobs. Both unemployment and the relation of individuals to employment through education is set in the context of this class analysis.

Theories of higher education and society

Universities and workplaces in highly developed and in less industrialized societies seem to be organized in ways that correspond closely. For example, both universities and workplaces tend to be bureaucratic, impersonal, hierarchical, and routinized in terms of their operations, motivating students or workers through external rewards such as grades and wages rather than through an activity's intrinsic value. Universities and workplaces are both dominated by expertise and authoritarian control and are organized through schedules that determine the timing and regulations that determine the nature of work effort. Some sociologists have even suggested that the education is organized in these ways to create workers who will be prepared to function in the bureaucratic work hierarchies that they will join as adults (see, for example, Parsons, 1959; Inkeles, 1966; Inkeles and Smith, 1974; Dreeben, 1968).

Beyond this organizational correspondence, education (including higher education) and workplaces seem to follow similar principles in terms of who achieves success. On the average, members of racial minorities or lower castes and children of poor families are likely to perform worse in terms of educational achievement and also are most likely to be unemployed and get the lowest-paying, lowest-status jobs.

But we observe a paradox in this role. Higher education seems to correspond to the workplace and the dominant structure of social relations in the society: it appears to reproduce the division of labour along class, sex, race, and caste lines. Yet it also seems to differ significantly from the workplace and the social structure. Even though higher education is marked by great inequalities, it has become more equal than

other major social institutions in terms of opportunities and participation. The large differences in occupational status between men and women in the labour force are not reflected by nearly such great differences in education. Females tend to be concentrated more heavily in nonscientific and nontechnical university faculties than are males, but not to the degree that females are found concentrated in a few occupations in the labour force. And whereas educational spending is highly concentrated on those from higher income groups, such spending is not as concentrated as the income distribution itself (Carnoy, et. al., 1979).

In analyzing these roles, there is one tradition in the literature of stressing that education is independent of the structure and content of jobs—that is, that education is an initiator of political and social change independent of the dominant economic and political power in the country. This position is most closely associated in the United States with John Dewey and progressive education (Dewey, 1916; Cremin, 1951). Even in some of the recent "critical" analyses of education, such as those by Illich (1971), and, from a different perspective, Bourdieu and Passeron (1977), Apple (1979; 1982), and Giroux (1981; 1983), the autonomy dimension is central to the idea that education somehow creates values or ideology independently of the workplace.

On the other hand, there are those like Inkeles and Smith (1974) and the human capital economists (Becker, 1964, for example) who stress education's functionalist correspondence to economic and social needs—that is, the role education plays in preparing youth for later work and social roles. A "critical" literature has also emerged in this functionalist mode. Carnoy (1974), Carnoy and Levin (1976), Bowles and Gintis (1975), Labarca (1980), and Vasconi (1977) all argue—in one form or another—that the educational system produces skills and knowledge in a class-bound context. Hence, education necessarily reproduces the class relations of production by shaping minds to fit social relations outside the schools and universities.

The various analyses therefore deal with the paradox in their own particular ways: traditional and critical progressive education writers claim implicitly that whereas the universities may produce certain skills for the workplace, education is independent from the economic and political systems and shapes values and knowledge in its own image. For such writers, there is no paradox because the similarity to the workplace and the production of skills for a particular division of labour is a secondary feature of universities—the search for knowledge and truth

and even social morality is, in and of itself, the universities' mission, a mission that the educational system controls and shapes. More recent critical autonomy analysis assumes that the relationship between workplace and education is reflected in the curriculum and in professor-student relations, but the analysis argues that these practices are not directly related to the workplace and, indeed, have a life of their own, a life based on reproducing an overall hegemonic ideology rather than the relations and forces of production.

The functionalist research explains the paradox in a totally different way: it tends to *dismiss* the differences between schooling and the structure of production and social relations. There is no paradox because the university develops the kinds of skills and values required by a society, and as social and economic requirements change, so do the practices of education and even its structure. There is disagreement between the traditional Parsonian and the critical neo-Marxian versions of this general functional interpretation, but the controversy is over the nature of society and the meaning of progress—and therefore over what kind of society universities reflect and help develop—rather than over the existence of correspondence between education and the structure of society.

But none of these analyses of education explains adequately the education-workplace relationship. It is not enough to assume away the important paradoxes in this relationship; there *are* important similarities between the structure and practices of universities and the structure of the workplace. Formal education is the principal institution producing not only values and norms among youth but also skills and practices of production.

At the same time, however, neither the ideology/pedagogical practices and skills in higher education nor its outcomes correspond directly to the structures and practices of work.

To understand the role of education in the socio-historical context of both high and low-income societies and the changes taking place in that education, we need an alternative, and more complete, theory of its role. To develop that theory, it is important to introduce the concept of the State[2] and the primary part it plays in any analysis of education.

[2] We define the State as the political system (the public sector and its relation to the private sector) which can be viewed as the system of government rather than a particular government or regime (see Carnoy, 1984).

The State is a key provider of education.

What function has the State played in education? On the one hand, traditional views of education have assumed that the national State operates independently of unequal economic power in the world system, and even independently of economic power relations in a given country. Thus, the State represents a kind of national consensus and makes policy on bureaucrats' interpretations of that consensus. Indeed, the autonomous State may even create policy to lead consensus in particular directions that the State considers in the public interest.

Critical views of education, however, consider the capitalist State to be an expression of class interests, and those class interests are manifested largely in terms of the particular economy's history within the context of the world economic system (Cardoso and Faletto, 1978). This means that the State's policies are largely conditioned by the world system of capitalist production, by the way that the particular country's production system has developed in that world economy, and by the way class conflict has developed in that context. Educational policy may therefore be autonomous from production but not from the division of labour produced by the particular position of that country in the world system, nor from the nature of the class conflict as it has developed historically in the country. The State in this critical view either represents dominant class views as they are expressed in their conditioned economic and social position in the world system or is an arena of class conflict—a condensation of the social struggle that characterizes capitalist development, and in the case of periphery societies, dependent capitalist development.

This alternative theory suggest that the dynamic of education in a given society can best be understood as a condensation of a much wider social conflict inherent in its development. In a capitalist society such as India, the conflict emerges from the nature of capitalist production, its inequalities of income, and its control over work processes and one's own labour. These inequalities and lack of control generate struggles by subordinate, relatively powerless groups for greater equality, economic security, and power over social decision. In a politically democratic society such as India, the space for such struggles is provided by the State. But even in undemocratic societies, the State is the focus of social movements that want to expand their rights and power over resources; the struggle, however, tends to be less institutionalized. In public education, the social conflict is expressed in the conflict between reforms that

reproduce the educational inequalities required for social efficiency under monopoly (transnational) capitalism and reforms that equalize opportunities in order to achieve the ideals of social mobility, democratic participation, and constitutional protection.

Thus the history of the expansion of education in most societies is characterized not only by correspondence to changing workplaces but also by an impetus toward greater equalization, democratization, and participation through education. Education is subject to internal stresses created by the two contradictory directions of inequality and democracy, both emerging from social conflicts and the prominent place of education as an arena of social conflict. Continuing skirmishes and their outcomes have led to changes in the workplace, to educational change, and—through educational change—to the setting of conditions that may have contributed to change in the workplace. These movements toward equalization and democratization are evident not only in the overall culture surrounding education (and teacher, student, and community belief in education) but also in the direct challenge to existing laws and in the establishment of new legislation that allows for unions for teacher and the increasing rights of parents and students in schools. (For a fuller development of this theory, see Carnoy and Levin, 1985.)

Such a view of the dynamic of education suggests that the expansion of higher education in India and its opening to the scheduled castes is in large part not the result of public planning based on technical criteria, but rather due to the strength of social and constitutional forces pushing for the increased democratization of Indian society. In this sense, rate of return or manpower analyses are not important factors in dictating public policy toward higher education. Instead, policy regarding universities emerges from political conflicts that are resolved on political grounds but in educational terms.

Graduate unemployment is associated with the rapid expansion of higher education in an unevenly developing labour market. It has often been suggested (see, for example, Blaug, 1973) that slowing down such expansion through university fees or stiffer entrance requirements would probably reduce graduate unemployment. But such suggestions can only be carried out in the context of a powerful political movement whose aim is to turn back democratization in favor of even more unequal access to universities than now exists. In economic/technical terms, such action may be "efficient," but the human capital theorists proposing it ignore its political foundations. On the other hand, increased information about jobs, better counseling into relevant

subjects of study (if such choices are possible after university entrance), and the expansion of jobs for graduates from State development policies may all be complementary to democratization processes. In any case, if this model is correct, only pressure by political forces can produce the implementation of such policies in a democratic state of the Indian type.

Theories of education and labour markets

If education is considered as completely autonomous from economic forces and structures, its physical expansion and enrolment, curriculum, academic outcomes, teacher-student relations, and other educational variables would have little, if anything, to do with what is happening in the economy. The educational system would develop in response to forces internal to education, and its performance would be measured in terms of educational criteria.

Nevertheless, it is difficult to support empirically the total autonomy view, especially in analyzing higher education. In India, as we shall show later, data from the three studies we review suggest that students attend university primarily to get a better job, and an important reason given for choosing the particular subject studied is its career potential. Whereas it may be true that enrolment in Indian universities seems to expand despite high levels of unemployment, Blaug et.al. showed that in part this is true because unemployment of secondary school graduates is even higher. Furthermore, the studies we review also suggest that the social class (parents' economic position) of students in university and of graduates seeking work influences their career choice, their employment, and their salary (both expected and actual).

Once we allow that economic structures have a significant impact on what takes place in higher education, we have to ask what the relationship is between education and economy. One key to that relationship lies in theories of labour markets. In order to understand the economists' explanation of graduate unemployment, the relation of higher education policies to such unemployment, and strategies for solving it, we first have to get at their underlying models. Three such models have dominated the literature: neo-classical, dualistic, and segmented.

The traditional neo-classical view of employment and unemployment is derived from the concepts of competitive equilibrium and marginal productivity: in competitive equilibrium labour receives wages equal to its marginal contribution to output. If a competitive equilibrium is interfered with, either in product markets or in the labour market itself, to distort the prices of factor inputs, unemployment can result. In other words, more people will want to work than can work at the prevailing wage, since wages are higher than the marginal product of the unemployed.

In early traditional development models, labour was treated as a homogeneous entity, and so economists spoke of the marginal product of labour as if all man-hours of work were the same. However, in the last two decades, neo-classical economists have incorporated skill differentials into the notion of labour through human capital theory. In human capital theory, what is demanded and supplied in the labour market is not homogeneous labour but worker characteristics. The human capital model assumes that people's productive capability, or the value of their work in the production structure, is determined by the amount they invested in income-producing human capital investments. Some of these are in better health, schooling and training. Thus, the concept focuses on individual worker decisions and choices among investments in productive capacities and on individual employer decisions to hire certain combinations of capacities which the employer combines with other inputs in production at the prevailing prices for various productive capacities.

In its explanations of and solutions for unemployment, neo-classical economics draws on the concept of labour both as homogeneous man-hours and as human capital (worker characteristics), and in both cases the theory assumes that there are general laws that apply equally to all individuals in the labour market. Thus, whether it is a man-hour of work or a year of schooling, the market mechanism treats (prices) these inputs similarly across the entire labour market in that economy: it is assumed that in a competitive equilibrium, the market for man-hours of work or for various investments in skills will clear; if it does not, this means that, in some sense, the market is not in competitive equilibrium—distortions exist, and if they can be eliminated, full employment can be reached.

The implications of neo-classical theory for a full employment strategy should be clear: unemployment is caused by distortions in the

economy; eliminate these distortions and full employment will be attained. As for the relationship between education and unemployment, neo-classical theory in its strictest form would have to blame unemployment on those who are unemployed. That is, given the existence of unemployment in an economy because of distortions in the market (caused, for example, by the inappropriate intervention of the State into the economic system, or through the existence of monopolies in production), which are beyond the control of the individual worker, potential employees would be faced by a series of human capital investment decisions. If they made the right investment decisions, they would enter the ranks of the usually employed, and if they made the wrong decisions, they would enter the ranks of the often unemployed. The unemployed, then, are those who have not invested in the right set of characteristics, including the right amount or kind of schooling, which would give them a high probability of getting employment at the distorted prevailing wage.

The model does not treat worker objectives purely in terms of employment probabilities, for individuals do not maximize employment alone, but rather employment security and expected income (or wages). Some individuals may prefer occupations such as acting where there is a high probability of unemployment but a chance to make very high incomes, while others may prefer lower income jobs with high probability of continuous employment (such as primary-school teaching). Even so, in the neo-classical model, the less educated are more unemployed relative to the more educated in part because they lack the proper set of characteristics to be employed given the conditions of the economy. The solution to this problem is either to correct the distortions in the economy which produce the unemployment or to provide workers with sets of characteristics, including amounts and kinds of schooling, which will increase their probability of employment, or to undertake both these corrections.

For example (Blaug, 1973, p. 5-6, summarizing the ILO Colombia Report):

> "...an overvalued exchange rate, coupled with a system of import quotas and subsidized interest rates, has reduced the price of capital, while an elaborate system of labour laws has raised the real price of labour to employers. Similarly...the capacity of agriculture to

> absorb additional numbers into employment has been held back by the failure to break up the large estates and to promote family farming. Lastly, and more controversially, it (the ILO Colombia Report) establishes a direct link between the employment problem and the highly unequal distribution of income that characterizes Colombia along with almost all other developing countries."

And, on educated unemployment, after criticizing the ILO report's concept of mismatch between school leavers' job expectations generated by a traditional educational system and the job opportunities generated by the labour market, Blaug argues that the real problem lies in the structure of wages in the economy: the wages of the educated are set too high by government bureaucracies (which, not being part of the profit maximizing, exchange economy, do not have to set wages equal to marginal product). A distorted wage structure leads simultaneously to overinvestment in education and the unemployment of the educated.

Thus, distortions create unemployment. On that there is agreement. But there is apparently considerable disagreement in neo-classical theory on the reasons for individuals investing in ways which may maintain or increase rather than reduce their chances to be unemployed. On the one hand, the ILO reports indicate that there are institutions (State schools) which are distortions in themselves, producing a product which is not suitable as an input in a modern capitalist production process. On the other, Blaug argues that individuals are not misguided in their investments (they are indeed maximizing expected wages), but that at the prevailing wages the system cannot employ all of those who wish to get the high-paying jobs.

There are other reasons given for misinvestment: (a) inefficient information systems, so that students do not know which types of jobs are available and are likely to invest incorrectly in skills; and (b) disequilibria, or adjustments, in the economy caused by new kinds of technologies, which leave large groups of workers unemployed because they are not trained to do the new kind of work. Both of these allegedly put students in the position of incorrectly assessing the value of investments in certain skills. Once having made the investment, the student either finds himself without work, or, in the second case, finds work but a few years later is unemployed because the kinds of jobs for which he is trained have become obsolete.

Under this analysis of the causes of unemployment, and under the neo-classical theory's assumption of a continuous labour market, increased supplies of educated labour can and will be absorbed by the labour market if the wages of educated labour fall relative to the wages of less educated workers. Thus, one policy available to reduce educated unemployment is to reduce the wages of the educated, particularly in the high-wage public sector. Even if this does not increase employment, because of rigidities in the labour market, it is argued that the long-run effect of wage reductions will be to decrease the supply of educated labour, since the return to investing in education will decline. Similarly, increasing the cost of schooling to the individual by making him or his family bear an increased proportion of the total cost of schooling will tend to reduce the supply of educated labour relative to the demand, decreasing educated unemployment.

Dualistic theories of labour markets argue that different sectors of the labour market, whose production is based on different technologies, treat labour promotion and pay differently (Doeringer and Piore, 1971). The labour market is not continuous. Technological dualism has led indirectly to a job competition model of the labour market (Thurow and Lucas, 1972). According to that model, productivity is an attribute of jobs, not people. Jobs in which the worker works with a lot of modern capital equipment are high productivity jobs, and workers queue up for such jobs. Once a worker is hired, the cognitive skills necessary to raise his productivity up to the productivity of the job are learned through formal and informal training programs. The chief criterion which employers use in selecting workers for jobs is trainability. Those workers who possess background characteristics, such as race, sex, education, age, psychological tests and previous experience, which employers feel reduce training costs go to the head of the queue and receive the best jobs.

Technological dualism and the job competition model argue that wages are not a function of the supply of labour; the existence of the queue does not cause wages to fall, since wages are a function of jobs not people, and the nature of a job is a function of the technology associated with it. Unemployment is also a function of investment in physical capital and the capital-intensity of that capital. Thus, underemployment and unemployment depend on the capacity of the modern sector to absorb labour into full-time, modern jobs.

In this model, education plays an ambiguous role. On the one hand, educated labour is more trainable and therefore is higher up in the queue to get the full-time, permanent jobs associated with the modern, capital-intensive sector. On the other hand, increasing the average level of schooling has little effect on the number of these jobs available or the productivity of workers in modern jobs, since employment in the modern sector depends largely on capital investment and technology (much of which in developing countries comes from abroad), not on the education or workers employed, and productivity is a function of the job, not of the characteristics of workers except for their specific skills. Hence, education has distributional consequences (who will be employed and unemployed) but does not increase growth (except, perhaps, by lowering the costs of training) or increase employment possibilities in the modern sector. Those variables are determined externally to education, usually by foreign technology and foreign investment.

Furthermore, in the job competition model, increases in the quantity of workers with schooling do not affect the wage levels of educated labour. In the orthodox neo-classical model, inflexible wages and, indeed, unemployment (the failure of the market to lower wages and clear the market for labour) must be explained by government interference through minimum-wage laws and the recognition of unions as having collective bargaining rights. This is regarded as an external distortion in the workings of the labour market. But the job competition model views inflexible wages as a function of the way capitalists run labour markets: by identifying certain wages with certain technology or job characteristics, the employer is relatively fixed in what he is willing to pay to get certain work done and the number of workers he is willing to employ. The technology chosen to produce a particular product, in turn, is determined primarily by the technology used to produce the product in the highly industrialized countries, since this is the technology with which the capitalist and the associated technicians are familiar. Therefore, unemployment is a function of capitalist decisions, not the decisions of a labour-influenced government, and changing the skill characteristics of the labour force will do little to change the wage structure or the number of people employed in the modern sector.

The existence of a large bureaucracy alongside a relatively small modern capitalist sector in most low-income countries—a bureaucracy

that employs a high fraction of the educated labour force—complicates the duality/job competition model: how is the wage structure in the bureaucracy determined? Is there an imported technology of bureaucracy which prevents wages in the public sector from falling? In some sense, it can be argued that the wage structure in, and the technology of, the public bureaucracy of many countries was inherited from colonial predecessors, and so constitutes an imported modern-type sector. Changing this wage structure would probably require a whole new set of hierarchies in the bureaucracy. And to some extent wages in the public sector may be closely pegged to wage structures in the modern private sector, which, in turn, according to this model, are determined by imported technology. Thus, while Blaug may be correct in suggesting that public sector wage structures are largely to blame for an oversupply of educated labour, such wage structures may not be independent of a particular organization of production of goods and services; to recommend changing public sector wage differentials may imply a change in the technology employed in producing both government services and industrial goods.

The model of labour market segmentation argues that systemic forces restrict the options available to different groups in the labour force (Gordon, Edwards, and Reich, 1982). The primary unit of analysis is no longer the individual and his free choices, but rather groups or social classes who face objectively different labour market situations that systematically condition their tastes, and restrict their range of effective choices. The behavior of these groups or classes then conditions the subsequent development of technology and job structures. The neoclassical and dualistic models specify institutional parameters and then analyze the equilibrium that results from the choices of income-maximizing individuals within those parameters. The segmentation theories attempt to explain the development of the institutions themselves as the result of interactions of groups or classes of individuals with objectively different interest; interests determined by the prior development of the institutions.

Labour market segmentation theory therefore attempts to refute neo-classical theory's assumptions that profit-maximizing employers evaluate workers in terms of their individual characteristics and that all workers have a wide range of options among jobs and among different forms of training. The theory of labour market segmentation claims instead that the labour market is fragmented into persisting groups,

identifiable by rather permanent group characteristics. Those who fall into one or another of these groups have different patterns of work life that emerge not from individual choice or individualized employer evaluation but largely from the structure of the labour market for particular sets of jobs.

If the labour market is characterized by segments, and each segment, in turn, is rewarded differentially (both in ages and employment security) not so much because of marginal productivity differences but more for political and social reasons, employment patterns will not be affected primarily by changes in the structure of the economy (the growth of the modern sector relative to the traditional sector, for example), nor by changes in the distribution and level of education and other personal characteristics, except as those changes affect the political power of the various segments, particularly the ability of workers in each segment to increase their employment security over lifetime relative to workers in other segments. Employment/unemployment/underemployment in this theory, therefore, is not primarily a technological problem (economic growth), nor a problem of the human capital characteristics of workers, even though these are important variables, but primarily a political issue dependent on the political power of workers organizations relative to capitalists and managers. The labour market segmentation model argues that a full-employment policy would require all labour gaining political power at the expense of owners of capital in order to change hiring practices and the hiring/firing prerogatives of management, as well as the kinds of technology that are adopted to produce goods. Indeed, the historical analysis of the segmentation theories contends that segmentation was the result of increasingly dividing up the labour force (separating one group from another) so that workers would compete against each other for employment security and a share of the wage bill instead of joining together with other workers in other segments to achieve a full-employment policy and to increase the size of the wage bill relative to the returns of capital.

Segmentation theory also disagrees implicitly with the job competition model on the issue of the supply of labour affecting the level of wages and productivity. Accordingly to the segmentation analysis, it is through the existence of a reserve army of the unemployed (a queue) that workers wage demands are kept low and that profit is increased. So it is in the interest of capitalists and managers to have unemployment in the economy at all levels of skills in order to control workers demands in order to play different groups of workers off against each other for

employment security and a share of the wage bill. Graduate unemployment in this model is an extension to a growing white-collar portion of labour of methods used by employers to keep a cheap unsilled labour force under control. As soon as white-collar workers and technicians begin to feel that they can exact different working conditions from the capitalist/managerial class than those under which factory and unskilled workers function, the number of graduates trained to do white-collar work is greatly expanded relative to the number of jobs available. Technicians and potential bureaucrats are no longer assured of white-collar work, nor of any job security at all. Under those circumstances, we should expect that the demands of that group of workers and their political power should decline (Braverman, 1975, Chapter 15).

The issue of employment structure in labour market segmentation theory, therefore, moves out of the realm of analyzing the institutional structure of wages and employment themselves and the social-political-economic forces influencing changes in the structure. The theory implies that employment structure is not determined by, nor even necessarily tied to, the distribution of productivity. The correlation of education and experience with employment therefore does not establish that more education and more experience contributes to higher productivity and employment probability; hence, the connection between these worker characteristics and employment is not primarily economic (in the sense of increasing production) but tends to be largely socio-institutional.

Thus, employment policy in the segmentation model focuses on the nature of labour markets rather than on the characteristics of workers in those markets. If the educated are becoming unemployed, segmentation theory would concentrate on analyzing the changing nature of the jobs held by secondary and university graduates rather than the nature of their education or the mismatch of education and jobs. If unemployment rates are higher among the less educated than the more educated, segmentation analysis would examine differences in the employment characteristics of jobs held rather than the characteristics of workers in those jobs. A full employment policy for any one of these groups would have to deal with altering the employment characteristics of the jobs in each segment characterized by higher unemployment.

This implies that analyses of labour markets should focus on government incomes and employment policies (either direct or indirect) over time not—as neo-classical theory would argue—because the public

sector is interfering with the smooth operation of the free enterprise system, but because the State is a powerful force in affecting earnings and employment security of workers in various segments of the labour market and of labour as a whole through macro-economic policy. Intervention by the State through such direct or indirect policies, it is argued, can change (and has changed) wages and employment conditions of different groups much more rapidly and more significantly than changes in the personal traits of workers.

Further, changes in the pattern of investment in and organization of schooling and training can be correlated with changes in employment patterns and the degree of unemployment/underemployment if the forces which change both schooling and employment change them in the same way in the same period. We can imagine that a progressive government would alter the pattern of expenditures on schooling while pursuing a full employment incomes policy.

The government could also intervene in the educational system, without intervening in the job structure, to alter the class/race nature of the school/training system; a policy could be instituted to admit peasants and working-class men and women to higher education in numbers greater than their percentage in the population. If hiring practices do not change—years of schooling still serving as an important determinant of access to different segments of the labour market—changing access to schooling for different social classes and castes could change intergenerational mobility among more and less stable jobs without changing the intra-generational pattern of jobs held.

The results of the studies

The three studies we review here examine a number of different aspects of higher education in three States and four areas of India—West Bengal, Bombay, Dharwad (Karnataka), and Marathwada. There is not perfect correspondence in methodology or even questions asked among the studies, but, in general, they attempt to understand why students choose their subjects of study, what students' perceptions of the labour market are, how graduates do or do not find jobs, how long they are unemployed, what kind of jobs graduates do find, including the salary they obtain, and how the characteristics of the unemployed differ from those of the employed.

In this review, we group these results in a somewhat different form than do the studies themselves. We are concerned with understanding—from the studies—the implied relationship between higher education and the economy, the nature of the labour market for university graduates, and the role the public sector does and can play in reducing graduate unemployment. Before proceeding further, a brief description of the socio-economic background of the three States is given so as to provide the context.

The three States together accounted for 23 per cent of the total population of India—the largest being Maharashtra and the smallest Karnataka. Of the three, West Bengal has the lowest proportion of working population at 26.5 per cent and Maharashtra the highest at 35 per cent. The latter State also had the highest share of organized sector employment at 14.2 per cent while Karnataka had the lowest at a mere 5 per cent. Karnataka's per capita income was the lowest at Rs: 1,458, which was less than half that of the highest of Rs: 3,490 in West Bengal. As to the literacy rate, it was highest in Maharashtra and lowest in Karnataka.

In so far as the development of higher education is concerned, the States also showed variaions. Maharashtra has the lowest number of institutions per thousand population and Karnataka the highest, while enrolment of students per thousand population was highest for West Bengal at 41.35 and lowest for Maharashtra at 7.30. The faculty-wise distribution of enrolment varied significantly among the States as well as among the different regions within the States. Karnataka had the highest share of arts and engineering students, Maharashtra the highest share in medicine and commerce while West Bengal had the highest proportion of science students[1] As to the proportion of female students, this was highest in Maharashtra followed by Karnataka and West Bengal.

Two States (the exception being West Bengal) have augmented their educational efforts, as revealed by the share of educational expenditures in the State domestic product, shown in Table 1.

Table 1: Educational expenditure as percentage of State Domestic Product

Year	West Bengal	Maharashtra	Karnataka	India
1960-61	2.6	3.0	2.6	2.5
1976-77	2.6	3.3	3.6	3.2

[1] Raza M. and Aggarwal Y. *Higher education in India: the Regional Dimension* Occasional Paper No.7, NIEPA New Delhi, 1984. Table 4, p.22 and Appendix Table 4 pp. 38-40

The growth of university enrolment and unemployment

University enrolment in India has expanded at a phenomenal rate, and higher education has absorbed an increasing fraction of India's total education budget. According to the Bombay/Karnataka study (Panchamukhi, 1984, p. 1), enrolment in Indian universities increased at a 10 per cent per annum rate between 1950-51 and the mid-1970s. The West Bengal study reports a 12.7 per cent annual increase for India as a whole between 1963 and 1970. Unesco data indicate a 9.8 per cent increase between 1970 and 1975 (Unesco, 1984). However, the estimate given by the University Grants Commission shows a slower growth rate during the same period. This discrepancy is mainly due to the differences in coverage of higher education.

Since the mid-1970's, the enrolment increase has continued at a slower rate, rising at a 3.7 per cent rate in the period between 1975 and 1979 (Unesco, 1984). By 1979, more than 5.3 million students were enrolled in higher education. Of the total enrolment, only 16 per cent was in rural areas in the mid-1970s, and less than one-fourth were women, although this latter figure rose steadily throughout the 1970s, reaching 26 per cent in 1979. As a percentage of the 20-24 year-old age cohort, university students represented 6.2 per cent in 1970, and 8.7 per cent in both 1975 and 1979.

Expenditure on education increased steadily in real terms throughout the last three decades (see Table 2), in total, per capita and per pupil. It is particularly striking that the share of primary education in the total direct educational expenditure, plan and non-plan combined, declined significantly during the same period from 40 per cent in 1950-51 to 25 per cent in 1976-77, whereas that of higher education increased from 20 per cent to 28 per cent. The higher the level of education, the higher has been the rate of growth of direct expenditure (see Table 3).

While public expenditure per pupil increased substantially at each level of education in India during the last 25 years, the expenditure when adjusted for inflation shows a decline for all levels except primary. The greatest sufferers were the professional colleges (see Table 4).

The States which have been the subject of study show some variation in the allocation of resources for the three levels of education. Maharashtra accorded least importance to higher education among the three. However, the share allocated to higher education appears to be

Table 2: Excpenditure on education in India at current and constant (1950-51) prices

Year	Total/Rs.millions)		Per capita (Rs.)		Per pupil (Rs.)	
	Current prices	Constant prices	Current prices	Constant prices	Current prices	Constant prices
1950-51	114	114	3.2	3.2	35.6	35.6
1955-56	190	221	4.8	5.6	42.7	49.7
1960-61	344	297	7.9	6.8	53.7	46.3
1965-66	622	406	12.8	8.4	70.0	45.7
1970-71	1 118	531	20.7	9.8	141.7	67.3
1975-76	2 105	577	34.7	9.5	230.1	63.2
1979-80	3 500	764	52.8	11.5	368.5	80.4
Growth rate (%)	12.5	6.7	10.2	4.5	8.4	2.8

Table 3: Trends in intra-sectoral resource (total) allocation in education in India (Rs. in millions)

Year	Primary	Middle	Secondary	Other Schools	Higher	Total	Expend-iture	Total
1950-51	366	77	231	60	184	921	232	1 153
	(40)	(8)	(25)	(7)	(20)	(100)		
1955-56	540	154	376	81	293	1 148	449	1 897
	(37)	(11)	(26)	(6)	(20)	(100)		
1960-61	630	429	689	146	565	2 573	870	3 444
	(25)	(17)	(27)	(6)	(22)	(100)		
1965-66	1213	810	1 504	105	1 241	4 673	1 192	5 853
	(26)	(13)	(32)	(2)	(27)	(100)		
1970-71	2 365	1 709	2 700	128	2 709	9 611	1 572	11 183
	(25)	(18)	(28)	(1)	(28)	(100)		
1975-76	4 463	3 410	4 636	206	5 410	1 7925	3 122	21 047
	(25)	(19)	(25)	(1)	(30)	(100)		
1976-77	5 467	4 121	6 051	210	6 033	21 883	1 220	23 103
Annual Compound Growth	11.0	16.5	13.4	4.9	14.3	13.0	6.6	12.2

Notes: 'Other schools' includes professional, technical, vocational and special types

1976-77 data. 'Expenditure' refers to non-recurring expenditure. Other columns refer to recurring expenditure.

Source: *Education in India* (various years)

Table 4: Cost of education per pupil in India at current and constant prices (Rs. per Annum)

A. At current prices						
1950-51	19.9	37.1	72.9	1 905.6	231.6	779.2
1960-61	27.6	40.5	91.7	2 524.2	302.4	813.4
1970-71	57.0	84.9	168.4	4 141.2	421.6	1 179.0
1975-76	95.9	114.2	257.7	5 993.6	572.5	1 539.0
Growth rate(%)	6.5	4.6	5.2	4.7	2.5	2.8
B. At constant (1950-51) prices						
1950-51	19.9	37.1	72.9	1 905.6	231.6	779.2
1960-61	23.8	34.9	79.1	2 176.0	260.7	701.2
1970-71	27.0	40.3	80.0	1 976.1	200.2	560.0
1975-76	26.3	31.4	70.7	1 645.6	157.2	422.8
Growth rate (%)	1.1	-0.7	-0.1	-0.3	-1.5	-2.4

Source : Based on *Education in India* (Various volumes)

disproportionately high in all the States, especially in Karnataka (see Table 5).

Table 5: Intra-sectoral distribution of resources to education in the three States (1975-76)

State	Elementary	Secondary	Higher	Total direct	Total indirect	Grand Total
Karnataka	41.0	14.8	30.2	86.2	13.8	100
Maharashtra	39.1	26.8	22.6	88.5	11.5	100
West Bengal	30.4	27.2	28.9	87.5	12.5	100

Source : Tilak J.B.G. & Varghese N.V. *Resource for Education in India* NIEPA Occasional Paper No. 2, New Delhi 1983

Growth of employment in India has been much slower: in 1975, only 19.7 million Indians were employed for salaries and wages (including working proprietors) in the public sector (including agriculture at 1.2 millions) and non-agricultural private firms with ten or more employees. Of the total, only 2.2 million were women. By 1983, the number had increased to 24 million, of which only 3 million were women. This represents an annual rate of increase of 2.5 per cent overall and 4.0 per cent for women (ILO, 1985). Unemployment in recent years is increasing much more rapidly than employment: according to ILO, unemployment in 1979 was 12.4 million compared to employment in the above categories of 21.9 million; by 1981, employment had increased by 1 million but unemployment had risen to 15.1 million, or by almost 2.7 million (ILO, 1985, Tables 3 and 9). Accordingly to another source, the number of educated job seekers increased from 590,000 to 9 million during the period 1961-81 at an average annual rate of 14.6 per cent. (See Table 6.)

These numbers are remarkable not only because of the magnitude of the unemployment figures relative to employment (approximately 38 per cent of workers were officially unemployed in 1981), but also

Table 6: Educated job seekers in India (000)

	1961	1981
Matric.	464	5 008
Undergraduate	70	2 325
Graduates and above	56	1 685
Total	590	9 018

Source: *Statistical outline of India*. 1984. Tata Services Ltd. Dept. of Economics and Statistics, Bombay House, Bombay.

because apparently a very high percentage of the employed in India are university educated, even though that group represents a tiny fraction of the adult population. In 1971, according to ILO statistics, 1.1 per cent of those Indians over 25 years old had some post-secondary education (4.2 per cent in urban areas compared with 2.6 per cent in 1961). This translates into 2.5 million people in 1971, of whom 1.9 million were in urban areas. If we assume that this number doubled between 1971 and 1980 (probably an underestimate) to 5 million, and all those with post-secondary education entered the "employable" labour force, this group would represent 14 per cent of the 36 million Indians estimated by the ILO to be in that labour force. Even though many with post secondary education do not enter the labour force, the 14 per cent figure is signficant: it implies that post-secondary leavers and even higher education graduates cannot avoid the general condition of apparently massive unemployment in India, as they might if they represented a very small percentage of the wage and salaried labour force. As we shall show below, the recent studies we review here bear this out.

How much graduate unemployment and what is its nature?

In this context, it is not surprising that graduate unemployment reported by the studies is very large. Table 7 summarizes the unemployment percentages in the various samples.

Table 7: Graduate employment/unemployment, 1981, Various samples(a)

Sample	Employed	Unemployed
Marathwada Region	342 (34%)	656 (66%)
Karnataka University, Dharwad	182 (19.5%)	753 (80.5%)
Bombay University	502 (69%)	225 (31%)

(a) The West Bengal samples were drawn separately for employed and unemployed; hence the percentages are not meaningful.

The figures show that graduate unemployment is much higher outside large cities such as Bombay, in part, we suspect this is true because large cities are commercial centers and also important government centers—thus, a source of public employment. Smaller cities and towns do not have these advantages. In addition, it is difficult for graduates from these outlying areas to find work in large cities because, as the studies show, political and economic connections are important sources of jobs.

So unemployment rates are very high, even in Bombay. Are certain groups more likely to be unemployed than others? How long on average does the graduate remain unemployed after graduation? Are certain courses of study more likely to lead to employment than others? Are certain courses of study likely to reduce employment wait time?

At first glance, the results are somewhat mystifying. In the Bombay sample, the unemployed come from families with higher income than the employed, while in the Dharwad and Marathwada samples, the

unemployed are, as we would expect, from a lower socio-economic background (see Table 8). It was not possible to analyze the West Bengal data in this way because different samples were taken for employed and unemployed graduates.

The higher unemployment rates among the highest social class group in Bombay may be explained by a possibly higher fraction of females in that group, since females have a much higher unemployment rate than males across subjects studied It is impossible to tell from the results presented in that study whether there are more females in the highest family income group, but if that is the case, it would explain the anomaly. The Bombay study results do suggest, however, that higher income graduate females may tend to be more "partially" unemployed: they have often held jobs that are not permanent; and they seem to be more willing to stay unemployed if they do not get the job they want. Therefore, understanding unemployment among graduates in Bombay is made more complex because of the issue of female unemployment, particularly among socially better-off females.

There is little of such complexity in the provincial samples. First, unemployment rates among graduates are much higher. Second, as shall see, the duration of unemployment is longer and finding a job at all much more difficult than in Bombay. Like in Bombay, unemployment rates among female graduates is higher.

Which subjects of study provide graduates with the greatest employment probability? This question is of central concern in all the regional analyses. Table 9 summarizes the results for three of the samples. As in the previous table, it is not possible to estimate such percentages for West Bengal.

In every case study, graduates from the arts faculty had the highest unemployment rate (this is complicated by the fact that a generally high percentage of women graduate from the arts faculty), followed by science and commerce. Graduating in education, engineering, law, or medicine (other professions) helps in getting a job, but this statement is also complicated by the higher percentage of graduates with relative high socio-economic background. Nevertheless, having a more specific occupational training such as education or engineering—in both those cases, professions that are particularly needed by the public sector—helps get jobs.

Not only are unemployment rates for graduates high, but high rates affect how long it takes to find a job. As we would expect from

Table 8: Bombay, Karnataka (Dharwad) and Marathwada Universities: Distribution of employed and unemployed by family income or caste (percentage)

	Bombay		Karnataka	
Family Income	Employed	Unemployed	Employed	Unemployed
Rs. 500	91	9	12	88
Rs. 501-1000	59	41	18	82
Rs. 1001-1500	73	27	28	72
Rs. 1501-2000	24	76		
Rs. 2001	52	48	51	49

	Marathwada	
Caste	Employed	Unemployed
Lower	27	73
Higher	42	58

the previous analysis, waiting time is longer outside of Bombay and longer for arts and science graduates than for others (See Table 10). And even though these estimated wait times are long, the estimates are biased downward, since many of those in the unemployed category have never had a job, hence are still waiting for their first one. In all the studies, female graduates had longer waits for their first jobs than male graduates. The longer wait for females varied by subject studied: it was higher for those with arts training in Bombay and Karnataka, but lower for arts than science in West Bengal (however, there were very few women in the West Bengal sample). The wait was also somewhat longer for those from lower social class groups than from higher. For

Table 9: Bombay, Karnataka, and Marathwada Universities: Subject studied by graduates and rate of unemployment, 1981 (percentage)

Subject studied	Bombay	Karnataka	Marathwada
Arts	45	87	76
Science	31	82	69
Commerce	26	81	60
Education	20	39	48
Other Prof.	21	45	17

example, in Marathwada, lower caste graduates waited an average of 16 months, and higher castes, 14 months.

The Bombay study attempts to relate social class and other variables to waiting time systematically through regression analysis. But the results are notable for their lack of statistical significance. Neither the graduate's age, family size, family education (socio-economic status), or academic performance in university were significantly related to waiting time for any of the sex/subject studied groups. The single case of significance showed that for urban male commerce graduates, social class was *positively* related to waiting time, exactly the opposite result to what the overall tendency among all graduates appeared to be.

Both the Bombay and Karnataka studies reported a high percentage of graduates who waited for employment in order to get a better job, higher salary, a job in the right location, or the "right" working conditions. The better the job prospects for graduates in a particular field of study (medicine or engineering, for example), the more likely that the job wait was voluntary. We should also note that on locational preference, the more urban Bombay graduates were more committed to getting a job in a metropolitan area, while the Karnataka graduates preferred a town or village location. Where a person graduates apparently is more influential in determining job choice than the level of education attained.

Table 10: India: University graduates' duration of wait for first regular job, by subject studied, 1980-81

Subject Studied	West Bengal (years)	Bombay (months)	Karnataka (months)	Marathwada (months)
Arts	2.8	6.5	9.2	n.a
Science	2.8	6.3	8.7	n.a
Commerce	2.0	5.8	9.4	n.a
Engineering	1.0			
Education	5.7	4.8		
Other Prof.	2.9	4.7		
All	2.3	5.9	8.9	15.0

It is important to put the wait time figures in perspective. The surveys of graduates reported in these studies were taken within a relatively short time after graduation (somewhat more than a year in the Bombay and Karnataka studies, and 1-3 years—since the graduating classes of 1977-79 were surveyed—in the Marathwada study; it is not possible to determine the gap in the West Bengal study). So when we observe an average 6 months wait in Bombay and 9 months in Karnataka alongside 31 per cent and 80 per cent graduate unemployment, respectively, we should realize that the average waiting time may be much longer indeed. Even the 15 month average wait in Marathwada is probably a considerable underestimate. Only the West Bengal study, where the sample of employed graduates was not based on a recent graduating class but rather on graduates in the labour force as a whole, reflects the reality of waiting time in India. And the 2.3 year average waiting time is estimated for region where there may have been a relatively small supply of graduates in 1980: university graduates in 1971

were a low 0.41 per cent of the adult population (25+ years old) as compared to 2.77 per cent in India as a whole.

If the West Bengal figures are more representative of waiting time for India as a whole, the low Bombay waiting estimates combined with the 69 per cent of graduates employed suggest that in a metropolis, the employment market for graduates is considerably better than in the provinces. The results also suggest that, especially in the better employment situation, graduates are waiting for the kind of work they want to do permanently before taking a job; women are also more likely to have difficulty finding any permanent work at all. These factors confound the relationship between social class and unemployment: women graduates tend to come from higher social class background but are still more likely to be unemployed. Both men and women higher social class graduates are more likely to wait for a better-paying, higher status job (in keeping with their higher work expectations and the greater ability of their families to support them as they search and wait for a job). Yet, even though they may decide to wait longer for the right job, they are still more likely to be employed a year or two after graduation then lower social class graduates. This is where the short period of time between graduation and the date the sample was taken may affect the waiting time/social class relation.

It is clear that a graduate in a specific profession is much more likely to find work than one who studies arts or sciences, the most general course of study. Those who go on to further studies, particularly in technical subjects, also do much better than those who go into the labour market with just a first degree. But as the Marathwada study shows, there is no decline in unemployment for those who pursue Master's degrees in arts, science, and commerce (Chapter 6)—and this group represents the vast majority of graduate degree holders. Doing better academically also seems to have little significant effect on waiting time for a job (Panchamukhi, Chapter 4).

University graduates and earnings

For those graduates who found work, how did their earnings relate to their studies, especially to subject taken and academic performance? Does taking an advanced degree increase earnings possibilities significantly?

Table 11 shows that the average monthly earnings of arts, science, and commerce graduates are not very different, whereas the average for education and other professional graduates are higher—the latter considerably so. It is not unusual that earnings for most graduates are so similar, since these are beginning salaries for first-time entrants into the labour market. Salaries generally begin to show large differences by profession only later in life (for an explanation of age-income profiles, see Thias and Carnoy, 1972).

Table 11: Bombay and Karnataka: Average monthly earnings for graduates (both sexes), by subject of study, 1981 (rupees)

Subject Studied	Bombay	Karnataka
Arts	756	490
Science	738	642
Commerce	760	610
Education	777	662
Other Prof.	1 155	912

These averages are confounded by the combination of earnings of both sexes, since women graduates earn consistently less than males, except in education. In addition, the comparisons between the situation in the metropole and the periphery is made more complicated by possible differential relations in the two places between earnings and social class. There is a positive relation between family income and graduate's own income in Bombay, but the relationship is much

stronger in Karnataka, where all the high-earning medical school graduates come from families with incomes of 2,000 rupees or more (the highest category in the survey questionnaire); furthermore, graduates from higher income families generally receive rural property from their families and this provides added income. This is not the case in urban Bombay.

The Marathwada study does not tell us what the earnings breakdown is by subject studied, but shows a considerable difference in average earnings of low-caste graduates (Rs. 570) versus those of high-caste graduates (Rs. 712). Again, the average earnings are rather similar to those in Bombay and Karnataka (see Panchamukhi, p.43). A sample of 16 high-caste women employed graduates earned an average of Rs. 475, considerably lower than low-caste male graduates. There was only one low-caste women in the sample, and her salary was Rs. 700.

Earnings functions were estimated in the Bombay, Karnataka, and Marathwada studies. For the first two, log earnings are taken as the dependent variable and various equations are estimated by regression analysis within sex, urban-rural, and subject studied group using family income, family education, age of graduate, and other variables as "explainers" of earnings variation among graduates. Only a few of the estimates are statistically significant—for example, in both Bombay and Karnataka family income is significant in explaining the earnings of urban females who had taken arts degrees; family income and education are significant explainers of earnings among male and female employees in rural areas, and similarly for family education in the male urban science graduates regression and family income in the urban male commerce graduate regression. One of the problems in getting significant results for the Bombay regressions is that the average socio-economic class is so high. But one thing that is common to all of them is that income-wise and educational culture-wise, they belong to the higher echelons of the society.

The Marathwada regression estimates are much more systematically significant even within caste group: they show that both for high and low castes, father's income is a consistent explainer of the amount of higher education taken, the occupation of the graduate, and his earnings. Since the model is recursive, the effect of father's income is picked up in three places in the earnings equation—through the graduate's education, his occupation, and as a separate independent variable in the earnings equation. In addition, academic performance is found to be

significant in explaining high castes' occupation, which is an important result, especially since occupation is a significant explainer of earnings. Thus, academic performance has an effect on the earnings of high caste graduates in Marathwada, but not of low castes, and father's income is very important in explaining earnings of both groups.

In the West Bengal study, earnings are reported only for a special survey of scientific personnel holding advanced degrees. These are not just recent graduates, but degree holders of all ages. "The overall monthly salary of such persons stood at Rs. 850 while persons with M.Sc. degree earned an average salary of Rs. 548 per month. The highest salary of Rs. 1,059 corresponded to persons possessing Masters degree in engineering and technology. Graduate doctors earned Rs. 844 on an average while those possessing P.G. diploma in medicine earned Rs. 954 and persons holding M.D. degrees earned Rs. 1,038 per month. Graduate engineers/technologists had an average salary of Rs. 1,033 while the average salary for doctorates in science was Rs. 919." (Bose, et.al., p. 219). All these salaries are positively related to age, with M.D. degrees and Masters in engineering having the steepest slope with respect to age (p. 225).

But what is remarkable about these earnings figures for those with advanced degrees is that they are not much higher than the earnings of graduates with bachelors degrees. As the Marathwada study shows, those with Masters degrees are not more likely to be employed than those with B.A.'s, B.Sc.'s. or B.Com.'s. It is not surprising, therefore, that the analyses indicate a reluctance of unemployed graduates to continue their studies.

So even though there is variation in earnings among graduates with different degrees, monthly salaries among most university graduates do not differ radically one from another—certainly less than in the United States (see Carnoy, 1985 for university graduate salary differences among industries, sexes, and ethnic groups in Santa Clara County and the United States). Further, the average wages in manufacturing in India in 1981 were Rs. 616 per month (ILO, Yearbook of Labour Statistics, 1984). Assuming that the average earnings of university graduates of all ages with first degrees is about Rs. 800-900 per month, this means that they earn only 33-50 per cent more than workers in manufacturing. The relatively small difference suggests that the massive unemployment of graduates has had some affect on salaries, this despite the high proportion of graduates employed in public service where salaries are established by institutional criteria.

Where do the graduates work (those who find jobs)? The Bombay, Marathwada, and West Bengal studies all found that the majority of employed graduates found jobs as clerks/typists. These graduates came almost entirely from arts and science backgrounds, with some from commerce. Education and professional school graduates found jobs as teachers, engineers, and physicians. In the Marathwada study, it was also found that low caste graduates were more likely to be employed either as clerks/typists or teachers whereas a much higher fraction of high castes were engineers and physicians (33 per cent among high caste graduates versus 5 per cent among low caste).

There is an important difference between the Bombay and Marathwada samples, which is probably a feature of metropolis versus provincial labour markets for graduates: in Bombay, 70-80 per cent of the graduates are employed in the public sector (p. 52); in Marathwada, about 70 per cent of those graduates employed for wages and salaries (both low and high caste) work in the public sector or in semi-government jobs. Yet, in Marathwada, about 25 per cent of low-caste graduates and 33 per cent of high-caste graduates are self-employed, which is much higher than in Bombay. In any case, the preferred job of graduates is public sector employment.

What does this employment picture all add up to? Now we can understand why the average salaries of university graduates are not much higher than the average wage in manfacturing. Most of the graduates work as clerks and typists, many in government jobs, but nevertheless, low level jobs in government. Although a high percentage of both higher and lower socio-economic class graduates end up in such clerical jobs, very few from the lower socio-economic groups enter engineering or medical studies, and this is where the high incomes are. Those professions are almost entirely restricted to students from higher income families and high castes.

For the average graduate, most probably in a general course of study such as arts, science, or commerce, the occupational future is not very rosy except that he or she will probably avoid being a blue collar worker in a factory. If the graduate finds a job (and this takes some time), his or her salary will be somewhat higher than the average manufacturing wage. On the other hand, those who study education have a much greater likelihood of finding a job and a job at a somewhat higher wage than a clerk or typist. And for those relatively few who study a technical profession or medicine or law, the probability of employment

is much higher and so is the average salary earned. These latter professions also provide the opportunity for self-employment.

But it would be a mistake to believe that it is a policy option to move people from arts, science, and commerce to medicine, engineering, or even education. First, education is a low status occupation, almost in the same category as clerk/typist, so entering education is largely a choice based on a particular taste for that profession. Second, the higher paying professions are higher status and higher paying in part because it is difficult to enter those courses of study. The same can be said for post-graduate degrees in medicine and engineering. Those who get those degrees represent an elite of an elite. No planning policy can expand the number of degrees in those fields rapidly and hope to maintain their value in the market, especially since they involve self-employment to a large extent and hence competing in the private labour market.

Sending people on for advanced degrees also does not hold out much promise except as a way of forming better prepared specialists in certain fields such as engineering. The concept of developing a larger core of generalist-trained Indians to fill jobs as clerk/typists does not seem a very efficient use of scarce public resources. Certainly the earnings figures do not justify post-graduate general studies from a social cost point of view.

Nevertheless, the earnings and unemployment figures plus the reasons that many graduates (particularly those from higher income families) take so long to find jobs suggest that higher earnings are not the only motivation for young Indians to continue on to university, nor the most important. Out of 259 of the salaried employed graduates in the Marathwada sample, only 9 had jobs as "labourers." The rest were white collar jobs, almost all either clerks/typists or professionals. In the Panchamukhi study, those now employed had entered with career ambitions related to work as professional (certainly not as clerk/typists). The pressure for more university education and perhaps for higher degrees appears to come more from the kinds of jobs graduates can get compared to non-graduates rather than income differences or even lower rates of unemployment. Since such a high fraction of those graduates employed work for the State or para-statal agencies, the kinds of work graduates get is closely connected to the expansion of the State sector.

The West Bengal study sums up the situation admirably:

"The problem of unemployment as revealed in different studies undertaken in India can be summarized as follows. The proportion of educated unemployed to the total stock of educated labour force had been increasing. The educated people had more difficulty in getting a suitable job than the uneducated. Arts, science and commerce graduates found it more difficult to get a job than the professional graduates. Arts graduates found it more difficult than science graduates, and the science graduates were followed by the commerce graduates. Among the professional graduates the problem of employment was confined to engineering graduates only. The majority of graduates in India and in the state of West Bengal work for the government sector or public sector undertakings. Another interesting feature of the problem of employment in West Bengal is the underutilization of the training received by the graduates in their jobs. A majority of the graduates work as clerks where a good secondary or an intermediate education would have sufficed some years ago. Another feature of this problem is its temporary nature—a period of four to five years by which all graduates get some kind of jobs with at least half of the them getting employed within the first year of their graduation. Although it is temporary, the economic and social stakes are high. Because, the kind of job many of the graduates get is not related to the type of training they receive in the institutions of higher education or the salaries and the status attached to the jobs are not what they expected when they were undertaking their studies. The waiting period itself is frustrating to many of them, raising questions about the usefulness and relevance of the education system." (Bose et.al., pp. 15-16)

The role of the public sector in Indian higher education expansion and employment

The three studies had somewhat different purposes, but they all conclude, to one degree or another, that the State must intervene to make the connection between higher education and jobs more "efficient," as a means to reducing unemployment. In the Marathwada study, the objective is to recommend public sector policy for increasing access of low castes to the "better" jobs in the region; i.e., to reduce inequality in Indian society through higher education policy.

Can the Indian government move to carry out the recommendations of the studies? Before attempting to answer that question, we have to know what role public higher education has been playing in India—i.e., how does the Indian State implicitly view higher education in the development of Indian society?

We have shown that higher education has expanded rapidly in India despite high levels of unemployment among graduates, long waiting times for first jobs, and first jobs, when they are finally obtained, that are generally not much more than high-level clerks. Further, the employment market for graduates is tightly tied to the expansion of the public sector itself. The most desirable jobs for most graduates, especially graduates of provincial universities, are in that sector.

Can we say that the principal purpose of university expansion has been to increase capital accumulation (economic growth) by providing high level, highly productive manpower for the private sector? It would be difficult to justify the last twenty years of university expansion on that basis. However, the public sector in India is also responsible for production and capital accumulation. It could be that the State needs high level skills for technical and managerial production roles. Again, observing the types of jobs obtained by graduates in the early 1980s, it is difficult to explain the massive expansion in generalist degrees if the

goal were to increase rapidly the technical capacity of State-managed production. In addition, the enrolment in engineering and technology increased by only 2.2 per cent annually in the ten years 1963-73 while overall enrolment was rising at more than 10 per cent annually (Bose, et.al., p. 59).[4] The trend has, however, changed to a slower overall growth and higher growth for engineering and technology in recent years.

Rather, it appears that the principal reason for rapid university expansion has been political, not economic. As the West Bengal study states: "The growth of education in our country has been mostly in response to social demand ... and has rarely taken stock of its position in relation to needs of economy or say of material development" (p.58).

However, it is not completely correct to say that the State has simply responded to social demand. As the same West Bengal points out, in that region, to achieve the objective of democratization in higher education, the government initiated generous scholarship programs for lower social class groups, lower castes, and women. Structural changes, such as introducing regional languages as the medium of instruction in the universities and initiating correspondence courses, were introduced to make it easier to obtain higher education. So the State (political system) opened up higher education as a way of reducing social tension built into the inherent unequality of the Indian society. The very reason that one of the studies we reviewed (Marathwada) focused on the differences in that region between employment opportunities for lower caste and higher caste graduates is the result of a decade of attempts by the Indian governments (central and regional) to democratize Indian society through higher education.

[4] This is not to say that the university system does not generate a great deal of highly skilled manpower that can serve India's development needs, including the technical and management skills required in the public sector. "Despite the absence of a conscious effort to orient the education system towards developmental needs, India's educational system has provided a highly trained and efficient manpower, rated as the largest in the developing world, and comparable to those of the advanced countries. All the branches of our national life and culture are being manned and operated at key position by this manpower." (Bose, et. al., p. 58).

Indian higher education policy in the last two decades suggests, then, that universities have expanded rapidly largely due to this "legitimation" or democratization role of education. Its role in providing skilled manpower for capital accumulation is present, but secondary. Nevertheless, spending on higher education is expensive. It drains resources from other State investments. Efficiency is an issue. But efficiency in achieving democratization through higher education may well be more relevant than efficiency measures concerned with providing skilled manpower.

All this can change. The emphasis on democratization could shift to a high-skilled manpower focus under certain political conditions. Universities could begin, under pressure from the State, to restrict entry into the arts, science, and commerce faculties and expand engineering and technical fields. This would make entry for lower castes more difficult, and would slow down university expansion in general. The political costs to the nation could be high, and the material costs even higher to universities, which would lose examination fees were expansion to slow down. Yet, financial constraints could push India toward such a slowdown despite the costs involved.

The policy recommendations made by the three studies have to be viewed in this context. We can judge these recommendations in terms of their consistency with the democratization function or as arguing for a different direction in overall higher education policy.

The West Bengal study

The recommendations of this study call for the state of West Bengal to expand its educational activities at the primary and secondary levels, and to reduce disparities in cost per student in various types of educational institutions, but to reduce enrolment in arts and to divert school leavers to technical and professional education, "not necessarily in higher education institutions."

Within higher education, the study recommends making the content of the faculties more responsive to the world of work. For example, it recommends introduction of sandwich courses, vacation jobs for students, obligatory work experience for getting a degree, and the introduction of work education. Faculty-company executive exchanges are also recommended. Universities should emphasize agriculture and

rural extension programs, and self-employment should be promoted by providing education relevant to striking out in business, and making education more work-oriented. And universities should also emphasize English instruction, since employers use English as a selection criterion for jobs.

The study also recommends a number of changes on the labour market side: an increase in the absorption of educated females into the labour force; an improvement in the information students receive about jobs, both through better information to parents and more active placement bureaus; and a regulation of the employment process so that relatives, friends, political connections and caste cease being important in securing jobs.

The recommendations in general attempt to confront an excess supply of university graduates, an unequal education system, beginning in the earlier grades, and a labour market that, particularly in an excess supply situation, is also highly unequal and organized on connections and limited information rather than merit and widely available information.

But there are some difficulties in implementing some of these recommendations. Reducing the expansion of arts (and science and commerce could have also been included) will have a severe effect on access to higher education for lower castes and women students without a fundamental change in the whole Indian education system and perhaps even Indian society. Technical subjects at the university level are restricted largely to white males even in the United States, where a much larger fraction of young people attend university than in India, and where there are ample job opportunities (at high salaries) for those in technical fields. Although in India the employment situation for engineers is better than for generalists, even engineers face some difficulty in finding jobs. If the number of technical graduates expands rapidly, their relative position could deteriorate just as quickly.

Yet, the recommendation for expanding technical, non-university, education has great merit, especially in those regions where there is increasing industrialization and hence relatively high-paying jobs in manufacturing. There is always the problem of convincing those who have aspirations to white collar work to take such technical education. Salary, as we have shown, is not really the issue; rather, status is at stake.

As far as absorbing more females into the labour force, this seems logical but rather idealistic under the circumstances described in the study itself. Very few females were even interviewed as part of those graduates employed. Did this reflect their absence in the labour force? To recommend that more be hired in a situation of very high unemployment rates means specifically substituting women for men as university-educated clerk/typists, a move that would certainly be strenuously resisted by male graduates eagerly searching for a government job.

The most appealing recommendations in the study are the ones that point to fuller incorporation of students into work life through work-study programs, and the inclusion of self-employment and agricultural orientation in the university curriculum. All these suggestions could improve the employment situation of those who have the greatest difficulty finding employment now. If such programs were structured properly, lower castes, lower family income, and even female students could profit from them. As the other studies showed, unemployment is a greater problem in the provinces than in a metropolis such as Bombay. An agricultural and self-employment orientation could be particularly helpful in assisting graduates to find or create work in smaller cities and towns and in rural areas. The introduction of these programs would therefore be consistent with the overall democratization (legitimation) goals of higher education policy and would move away from the less logical and certainly less achieveable recommendation of expanding technical education at the expense of generalist studies.

The Bombay/Karnataka study

The conclusions of this comparative study suggest that there are indeed important differences between the employment conditions for graduates in the metropolis and the provinces. Nevertheless, both groups of graduates are an elite in their respective social-economic settings, and in both groups, despite their elite nature, family background differences are a much more important variable than either job market or educational variables in determining performance in the graduation examination and in job earnings.

Yet, even with these similarities, the argument made in this study is that different recommendations apply not only to the metropolis and

periphery graduate labour markets, but also to different groups of individuals within each of those markets. For example, graduates from Bombay university seem to have much more orientation and capability to self-employment than those from Karnataka. This supports our statement that a greater self-employment orientation to the curriculum in the periphery may have greater impact than in the metropole.

In keeping with this "diversity" approach to policy, the study is modest and noncommital in its recommendations:

> "Policies for either improving the job situation of graduates, or for improving the match between university education and the job, cannot be general for all the graduates. Faculty differences, family background differences, the moffusil or metropolitan character of the university or the job market, etc. need to be taken into consideration by the policy makers. Since a sizable number of Bombay graduates are unemployed on account of their special personal preferences, theinfluence of personal circumstances of graduates need also to be taken into account." (p 98).

The study goes on to say that since the mere provision of higher education does not ensure better job prospects or prospects of better paying jobs, and since the family background factors play such an important role, the problem of graduate unemployment cannot be viewed in isolation. The study suggests that the policies in this context need to address the controllable socio-economic dimensions of the family background. Two aspects which deserve the attention are the family size and family income. Policies directed towards the family size and incomes policy directed toward family income, may turn out to be more effective in tackling the problem of graduate unemployment, underemployment and misemployment.

Although it is certainly important to point out that family size and family income are important in affecting the pay-off and employment possibilities of an individual's education and subject of study (as well as the subject chosen), it is difficult to imagine that an incomes policy for what is already an elite group in Indian society is a likely or logical course that the Indian government should follow in improving the employment situation of university graduates. Family size policy is an

important component of overall development strategy in India, but it this elite group that is already in the process of moving toward smaller families or is least likely to be affected by policies emanating from the State, since they are least likely to be coerced into having smaller families if they do not wish to voluntarily.

The Marathwada study

Of all the studies, the purpose and conclusion of the Marathwada region analysis is the most specific. The study focuses on the situation of low caste graduates and makes its recommendations in terms of improving their position in the higher educational system and the labour market.

The study notes that the entrance of low caste Indians into higher education is a recent phenomenon, the result of post-1947 changes in the caste system itself, the emergence of scholarship incentives for the low castes, and the reservation of jobs for them in government employment. Nevertheless, the majority of low caste students enter into the least employable subjects—arts and social sciences—and receive the lowest level passes in their examinations. Further, the number of female low-caste students is minimal (2.7 per cent of the total number of low-caste graduates were low-caste females).

With this in mind, the study recommends that (a) the level of low-caste scholarship aid be tied to the academic performance of the low-caste student; (b) the level of scholarship aid be tied to the cost-of-living index (this would increase scholarship aid to the low castes); and (3) low-caste women be encouraged to attend university by giving them preference in employment in government jobs.

In the early 1980s, the percentage of reservation of jobs in government and other public sector employment in Maharashtra State was 13 per cent for scheduled castes, 7 per cent for scheduled tribes, 4 per cent for denotified nomadic tribes, and 10 per cent for other backward classes. The study shows, however, that in the Marathwada region in the period 1977-1981, there were between 5,000 and 8,000 vacancies notified annually through the employment exchanges but only 2,600 to 4,800 vacancies filled. The unfilled vacancies were systematically less than half of those notified. At the same time, there were more than 50,000 low-caste candidates on the live registers of the Employment Exchanges of the region. Of these, less than 2,500 were placed, or about

5 per cent. The study reports further that in 1975 about 23,000 posts reserved for low castes were cancelled by the Indian government under one pretext or another. Many of these posts were of a very general nature. "Hence we feel that there is an urgent need to streamline the administrative procedures relating to the recruitment of candidates by recruiting agencies like the Public Service Commission, Regional Staff Selection Boards; and other Public bodies like the State Transport, Electricity Boards, Police, etc." (p. 90)

The study also recommends that self-employment be stressed among graduates. The low percentage of self-employed corresponds to the situation found in the Karnataka study and so supports the overall observation that stressing self-employment is particularly useful in the provinces. The Marathwada study suggests that recently the government has made significant efforts in this direction (a number of entrepreneurial promotional and developmental institutions as well as fiscal and financial incentives) in the region, all seemingly oriented towards serving lower social class groups. But graduates belonging to the weaker castes are "ignorant of these numerous facilities; even the few who are aware, find it, in practice, extremely difficult to make use of the various facilities. They lack the seed money, contacts, self-confidence, and capacity to win over the official functionaries, and find the entire experience extremely frustrating" (p. 91). Thus, the study recommends developing institutions that "identify, train, and actively help enterprises" (p. 92).

The State must intervene, the study insists, not just to provide scholarships and reserve employment, but to ensure that the low caste graduates are hired into those reserved positions as well as promoting low caste self-employment through direct action in setting up enterprises. Whether the Indian government will follow through on such suggestions depends very much on how committed it is to equalizing job access. This is a much more serious proposition than allowing more access to higher education. The latter, although it certainly shifts some resources to the low castes, does not change the social structure. That requires translating higher education into a relatively improved economic situation—hence better jobs—for the low castes.

Finally, the Marathwada study argues that the high unemployment among graduates has driven down the enrolment in Marathwada University from more than 7,000 in 1974-75 to less than one-half that number in 1979-80. On the other hand there was and continues to be a

shortage of skilled secondary-educated technical personnel due to the industrialization of the region. "Therefore, we feel that the Government should establish a large number of technical schools even at the taluka level" (p. 92). This confirms the West Bengal observation that non-university technical education could reduce unemployment.

Conclusions

The review of these three studies suggests that the solution to India's problem of graduate unemployment is extremely complex. It is rooted in an economy that is growing much less rapidly than the expansion of higher education and, indeed, education in general and the growth of wage employment. Unemployment is so great among graduates and the wait time so long before obtaining a first job that slowing down enrolment in higher education may have only a minor effect on these variables perhaps even in the long run. Higher education continues to expand not only because of high unemployment at lower levels of schooling, as Blaug et.al. found, but because higher education is a necessary prerequisite for most white collar jobs.

Eventually, the higher educated do find jobs, and some of them are unemployed because they are waiting for the "right" job. The jobs competition model seems to describe well what the process of employment is. Therefore, there is serious question whether lowering wages in public employment will reduce graduate unemployment significantly, even though the data in Marathwada suggest that enrolment is falling in response to difficulty in finding employment. What is probably happening is an increase in lower castes in Marathwada opting to stay out of university because their unemployment is highest among all groups. Higher castes probably have a much greater disdain for jobs associated with lower levels of schooling and therefore much more incentive to attend university even if unemployment rates remain high. Further, it is not at all obvious how much effect lower enrolment among lower castes will have on the employment probability or waiting time of higher castes.

The real issue for the enrolment rates in Marathwada may not be the total unemployment rate, then, but rather the unemployment rate for lower castes. As soon as unemployment rates begin to fall or waiting

time declines, it is these groups that will increase enrolment. Again, the queue theory (job competition model) appears to explain well what is happening in the Indian labour market, with the added caveat that the lower castes (and women) are at the end of the queue, and lower castes may, even with higher education and even with concessions in public employment hiring, tend to be competing in a different part of the labour market than the higher castes. This indicates that the segmentation model may also be appropriate to understanding these markets. Yet, there is little concrete evidence that the labour market for university graduates as a whole is segmented in any systematic fashion.

If our assumption about higher castes' stake in university education is correct, it is unlikely that policies altering public sector wages would have a great effect on unemployment through supply reductions, even were such a policy politically acceptable. Not one of the reports recommended such a policy, nor did they recommend raising fees. What one study did recommend was reducing access to arts faculties, but of course, were such a policy to be implemented, women and lower castes would be hurt most.

Those recommendations, such as the ones we mentioned above, that attempt to lower unemployment within the context of a human capital model (economic efficiency) inherently assume that the principal goal of higher education expansion is skill production for economic growth. But they ignore the status goals of high-caste males. Such recommendations, were they implemented, run the risk of restricting access for lower castes and women to higher-paying public jobs as a price for lower unemployment rates.

Thus, the overall implicit goals of higher education expansion in India—the democratization of Indian society with the specific result of legitimizing the State bureaucracy—mean that policy recommendations which promote greater efficiency in achieving this goal are more likely to be relevant for Indian public policy.

What are such recommendations in the studies we reviewed? High pay-off technical education, loans for self-employment after such technical education, continuation courses that allow those in jobs to continue technical education while working, and other forms of alternative training that allow increased access to employment and higher wages are all possible recommendations that could work. They might incorporate low caste young men and women into relatively high-paying jobs without the long wait associated with general subject university

education. Such alternative training schemes would still allow those from the lower castes and those women who wished to take risks with university generalist degrees to pursue that route, but would simultaneously provide other paths to jobs. Further, the government should consider giving financial incentives to the lower castes to pursue technical training if it is found that the pay-off remains high in that area.

Finally, what do these three studies suggest about the general nature of research on higher education? First, the studies would all have benefitted from a more careful theoretical analysis of the expansion of Indian higher education and of the labour market for graduates. If that analysis had been done, the studies would have put more emphasis on understanding why different social classes and women/men face different conditions in the labour market and why they tend to pick different subjects of study in the university, as well as analyzing the reasons they go to university at all.

Second, all the studies might have been different had there been comprehension of how pervasive the nature of the unemployment problem for graduates is. When the unemployment rate for recent graduates is 70 to 80 per cent and waiting time for first job is very long, a different set of questions may be appropriate.

Third, all but the Marathwada study focused heavily on the opinions attitudes and experiences of students and graduates regarding selection of courses of study and the job market. Emphasis has been less on the actual decisions that people make in their lives. They show the information gap between reality and what those who attend or attended university believe. Yet, they cannot form a strong basis for policy. Of much more use is explaining the "revealed preference" of students in choosing particular subjects, the behavior of graduates in job markets, and much more information about the job markets themselves—how public employment jobs are filled, the nature of self-employment of university graduates in provincial cities and capitals like Bombay, and the kinds of roles that women and low castes play in private and public wage employment and how that differs from the role of the high caste male. How have wages changed over time for graduates? And how is the labour market changing—is their greater or less hope for future graduates in India? Not all these questions have been treated in these studies. However, we definitely know more now about the problem of employment of graduates in India as a result of these studies than we did before.

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What is the nature of the problem of re-employment of graduates in India? What are its causes? How can this problem be reduced? What rôle can the development of education have in tackling the problem? How can research on higher education help in understanding the problem of educated unemployment in India?

The present report, based on a review of three case studies undertaken in India within the framework of the IIEP research project on higher education and employment, attempts to answer these and associated questions.

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